<u>In the Claims</u>:

1-22. (Canceled)

23. (Currently Amended) A method for illuminating a semiconductor structure having a topmost photoresist layer, the method comprising:

providing [[a]] <u>the</u> semiconductor structure having [[a]] <u>the</u> photoresist layer, the photoresist layer having a thickness of less than 5000 angstroms formed on a surface thereof;

introducing an immersion fluid into a space between an optical surface and the photoresist layer; and

directing optical energy through the immersion fluid and onto the photoresist layer after the photoresist layer has been completely diffused with the immersion fluid.

24. (Original) The method of claim 23 wherein the immersion fluid comprises water.

25. (Original) The method of claim 23 wherein the optical energy comprises light having a wavelength of less than about 450 nm.

26. (Original) The method of claim 23 wherein the optical surface comprises silicon oxide.

27. (Original) The method of claim 23 wherein the optical surface comprises calcium fluoride.

28. (Previously Presented) The method of claim 23 wherein the photoresist layer comprises a chemically amplified photoresist layer.

29. (Original) The method of claim 23 wherein the immersion fluid is in contact with a portion of the photoresist layer.

30. (Original) The method of claim 23 wherein the semiconductor structure is immersed in the immersion fluid.

31. (Original) The method of claim 23 further comprising a stage underlying the semiconductor structure.

32. (Original) The method of claim 31 wherein the stage is immersed in the immersion fluid.

33. (Previously Presented) The method of claim 23 further comprising developing the photoresist layer.

34. (Previously Presented) The method of claim 33 wherein developing the photoresist layer comprises immersing the photoresist layer in a tetramethylammonia hydroxide solution.

35-36. (Canceled)

37. (Previously Presented) A method of fabricating a semiconductor device, the method comprising:

providing a semiconductor wafer;

forming a photoresist layer over the semiconductor wafer, the photoresist layer having a thickness of less than about 5000 angstroms;

introducing an immersion fluid into a space between an optical surface and the photoresist layer, the immersion fluid contacting the photoresist layer and being diffused

substantially throughout the photoresist layer;

patterning the photoresist layer by directing optical energy through the immersion fluid and onto the photoresist layer;

removing portions of the photoresist layer in accordance with a pattern from the patterning step; and

processing the semiconductor wafer using remaining portions of the photoresist layer as a mask.

38. (Original) The method of claim 37 wherein the immersion fluid comprises water.

39. (Previously Presented) The method of claim 37 wherein the optical energy comprises light having a wavelength of less than 450 nm.

40. (Original) The method of claim 37 wherein the optical surface comprises silicon oxide.

41. (Original) The method of claim 37 wherein the optical surface comprises calcium fluoride.

42. (Previously Presented) The method of claim 37 wherein the photoresist layer comprises a chemically amplified photoresist layer.

43. (Original) The method of claim 37 wherein the semiconductor wafer is immersed in the immersion fluid.

44. (Original) The method of claim 37 further comprising placing the semiconductor wafer on a stage.

45. (Original) The method of claim 44 wherein the stage is immersed in the immersion fluid.

46. (Previously Presented) The method of claim 37 and further comprising developing the photoresist layer.

47. (Previously Presented) The method of claim 46 wherein the step of developing the photoresist layer comprises immersing the photoresist layer in a tetramethylammonia hydroxide solution.

48. (Original) The method of claim 47 wherein the optical energy has a wavelength of less than 450 nm.

49. (Previously Presented) The method of claim 37 wherein providing the semiconductor wafer comprises providing a semiconductor wafer with a layer of material deposited thereon, wherein forming the photoresist layer comprises forming a photoresist layer over the layer of material, and wherein processing the semiconductor wafer comprises etching the layer of material.

50. (Original) The method of claim 49 wherein the layer of material comprises a conductive layer.

51. (Original) The method of claim 50 wherein processing the semiconductor wafer comprises etching the conductive layer into gate electrodes.

52. (Previously Presented) The method of claim 51 wherein each gate electrode ~~have~~ has a minimum dimension of 50 nm or less.

53. (Original) The method of claim 49 wherein the layer of material comprises a dielectric layer.

54. (Original) The method of claim 53 wherein processing the semiconductor wafer comprises forming trenches in the dielectric layer, the method further comprising filling the trenches with a conductor.

55. (Canceled)

56. (Currently Amended) The method of claim 61 wherein the ~~treating~~ converting is performed at least in part by plasma treating the upper portion of the photoresist layer.

57. (Canceled)

58. (Currently Amended) The method of claim 61 wherein the ~~treating~~ converting is performed at least in part by performing a chemical treatment on the upper portion of the photoresist layer.

59. (Currently Amended) The method of claim 61 wherein the ~~treating~~ converting is performed at least in part by performing an ion implantation process on the upper portion of the photoresist layer.

60. (Currently Amended) The method of claim 61 wherein the ~~treating~~ converting is performed at least in part by performing a thermal treatment on the upper portion of the photoresist layer.

61. (Currently Amended) A method of fabricating a semiconductor device, the method comprising:

providing a semiconductor wafer;

forming a photoresist layer over the semiconductor wafer;

~~treating~~ converting only an upper portion of the photoresist layer into a treated layer;

immersing the semiconductor wafer in an immersion fluid, the converting being a separate process from the immersing; and

patterning the photoresist layer by directing optical energy through the immersion fluid toward the photoresist layer.

62. (Previously Presented) The method of claim 61 wherein the immersion fluid comprises water.

63. (Previously Presented) The method of claim 61 wherein the optical energy comprises light having a wavelength of less than about 450 nm.

64. (Previously Presented) The method of claim 61 wherein the photoresist layer comprises a chemically amplified photoresist layer.

65. (Previously Presented) The method of claim 61 wherein the step of patterning the photoresist layer comprises immersing the photoresist layer in a tetramethylammonia hydroxide solution.

<u>**REMARKS**</u>

Claims 23-34, 37-54, 56, and 58-65 are pending in the present application. Claims 1-22, 35, 36, 55, and 57 were previously canceled. Claims 23, 56, and 58-61 have been amended. Applicants respectfully request reconsideration of the claims in view of the following remarks.

<u>**CLAIMS 23-34**</u>

Claims 23-30, 33, and 34 have been rejected under 35 U.S.C. § 103(a) as assertedly being unpatentable over U.S. Patent Publication No. 2006/0141400 (hereinafter "Hirayama") in view of U.S. Patent Publication No. 2005/0084794 (hereinafter "Meagley"). Claims 31 and 32 have been rejected under 35 U.S.C. § 103(a) as assertedly being unpatentable over Hirayama in view of Meagley and U.S. Patent Publication No. 2005/0037269 (hereinafter "Levinson"). Applicants respectfully traverse these rejections.

<u>*Not all Elements Taught or Suggested*</u>

Regarding claim 23, the Office Action acknowledged that Hirayama fails to disclose the step "directing optical energy through the immersion fluid and onto the photoresist layer after the photoresist layer has been completely diffused with the immersion fluid." The Office Action asserted that, while Hirayama fails to disclose this element, Meagley discloses this step and that it would have been obvious to one of ordinary skill in the art to have allowed the photoresist layer and the immersion fluid to diffuse together for "improved performance of the photoresist during the patterning process." (Office Action, page 4.) Applicants respectfully disagree with this assertion.

In particular, in the present case there is absolutely no teaching, suggestion, or motivation to teach or suggest that "the photoresist layer has been *completely diffused* with the immersion fluid" as explicitly recited in Applicants' claim 23. Rather, Meagley (the reference relied upon